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being absent or very scantily represented on volcanic intrusions. It is exceedingly variable in pollination methods, being not only adjusted for cross-pollination by the extrusion of the stamens, but in some cases being protogynous or protandrous. Occasionally it is adjusted for self-pollination, like the domesticated wheats. It is thought that the remarkable individual diversity shown by this wild wheat is explained by the great freedom in adjustments for pollination. It is further concluded that the self-pollination of the domesticated races is not a primitive condition, but that the adjustments for cross-pollination have been lost, and as a consequence there has been a decline in vigor, fertility, and disease-resistance.

The joints of the rachis are peculiar in separating from one another at maturity, each joint remaining attached to its spikelet and forming a barbed beak. It was observed that these beaked spikelets "creep into crevices of rocks or bury themselves in the soil."

There seems to be no reason to doubt that this Palestinian plant is a genuine wild wheat, but it is by no means certain that it is the prototype of our domesticated races. In fact, it is suggested that it be named as a distinct species (*Triticum hermonis*, from Mount Hermon). Of course, whether it is the prototype of our domesticated races or not is not a question that affects its practical value.

T. hermonis is a hardy plant in the sense of being able to live under a wide range of natural conditions, and it suggests the possibility of obtaining from it races of wheat adapted to the arid regions of the southwestern states. There is also a possibility of breeding its rust-resistance into our domesticated races. It is even suggested that this wild wheat may be used as a self-sown forage plant on the grazing lands of the Southwest; but the caution is urged that it might become a troublesome weed!—J. M. C.

Biologic species of Rhytisma.—The widespread occurrence of *Rhytisma acerinum* on many species of maple has led MÜLLER[20] to investigate the host relationships of this form whose distribution seems to indicate that it includes several biologic species. The field observations which led to this view were fully confirmed by cultural experiments which showed that the forms usually included in *Rhytisma acerinum* can be separated into at least two biologic species. The name *R. acerinum* is retained for one of these, the other is described as *R. pseudoplatani.*

Under *R. acerinum* two minor forms are distinguished according to the ease with which they infect different species of maple. *R. acerinum* f. *platanoides* occurs principally on *Acer platanoides* and infects less easily *A. pseudoplatanus* and *A. campestris*. *R. acerinum* f. *campestris* occurs principally on *A. campestris*, and less abundantly on *A. platanoides*, but not at all on *A. pseudoplatanus*. *R. pseudoplatani* infects only *A. pseudoplatanus*, upon which it occurs in company with *R. acerinum platanoides*.

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[20] MÜLLER, K., Zur Biologie der Schwarzfleckenkrankheit der Ahornbäume, hervorgerufen durch den Pilz *Rhytisma acerinum.* Centralbl. Bakt. II. **36**:67–98. *figs. 4. pls. 4.* 1912. Preliminary account, Ber. Deutsch. Bot. Gesells. **30**:385. 1912.

Infection by the spores of *Rhytisma* always takes place on the lower surfaces of the leaves. Observations during a period of six years show that there is a parallelism between the severity of the disease and the quantity of rainfall. No appreciable injury results to the trees from the attack of the fungus.

An experiment carried out by LESLIE and reported by TUBEUF[21] confirms in part the results of MÜLLER. Leaves of *Acer pseudoplatanus*, bearing sclerotia with ripe ascospores of *Rhytisma*, were suspended over pot-plants of *A. pseudoplatanus*, *A. platanoides*, *A. campestris*, and *A. Negundo*. Of these only *A. pseudoplatanus* was infected, showing that the fungus was unmixed *R. pseudoplatani* of MÜLLER.—H. HASSELBRING.

Fertilization in Lilium.—Although every cytologist has studied fertilization in *Lilium* and many have published their observations and conclusions, BLACKMAN and WELSFORD[22] have added a short paper to the list. They confirm the observation of NAWASCHIN and others, that the male nuclei are not accompanied by any cytoplasm, and agree that the male nuclei are capable of independent movement. The male nucleus which fuses with the polar nuclei is larger than the one which fuses with the egg nucleus, and is distinctly pointed. In both nuclei the chromatin is not in the form of a resting network, but is arranged in strands resembling a spirem. NAWASCHIN thought this arrangement was due to the motile condition, but the present authors suggest that it represents an early prophase of division. In *Fritillaria*, and perhaps in *Lilium*, the pollen tube does not enter the cytoplasm of the sac, but presses between the cytoplasm of the egg apparatus and the cytoplasm of the middle portion of the sac.—CHARLES J. CHAMBERLAIN.

Nuclei in sieve tubes.—It is generally accepted that the nuclei of sieve tubes soon disorganize and disappear, even such investigators as STRASBURGER (1891) and ZACHARIAS (1895) having failed to find nuclei in the mature tubes. By using the careful methods of modern cytology, SCHMIDT[23] finds that in *Cucurbita Pepo*, *Victoria regia*, and *Trapa natans*, the nuclei can always be demonstrated, even in the older sieve tubes. The technique of 1891 and 1895 was sufficient for the demonstration of these nuclei, but apparently it was not thought worth while to use such tedious methods in anatomical work. SCHMIDT promises a paper on the structure and function of the sieve tube.—CHARLES J. CHAMBERLAIN.

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[21] TUBEUF, K. VON, Rassenbildung bei Ahorn-*Rhytisma*. Naturwiss. Zeitschr. Forst- u. Landwirtschr. **11**:21–24. 1913.

[22] BLACKMAN, V. H., and WELSFORD, E. J., Fertilization in *Lilium*. Ann. Botany **27**:111–114. *pl. 12*. 1913.

[23] SCHMIDT, E. W., Der Kern der Siebröhre. Ber. Deutsch. Bot. Gesells. **31**:78, 79. 1913.